Arizona Department of Health Services

Bureau of State Laboratory Services
Office of Laboratory Licensure, Certification & Training

3443 N. Central Avenue, Suite 810
Phoenix, Arizona 85012
(602) 255-3454
(602) 255-1070 FAX
Technical Support Hot-Line 1-800-952-0374

JANE DEE HULL, GOVERNOR
James R. Allen, MD, MPH, DIRECTOR

DATE: March 31, 1995

TO: Laboratory Director and QA Manager

FROM: Wesley B. Press, Bureau Chief

SUBJECT: Information Update #7

NOTE: If any problems occur with this web site, please call (602) 364-0720. Thank you.

NOTE TO LAB DIRECTORS: PLEASE DISTRIBUTE THESE UPDATES TO YOUR STAFF. THESE ARE MOST BENEFICIAL TO BENCH CHEMISTS.

1. Arizona Department of Environmental Quality, UST Section, has adopted a new site characterization guidance effective March 20, 1995. This new guidance sets a holding time limit of 72-hours between **sample collection and sample extraction** for soil samples to be analyzed for VOC's as part of the site investigation to determine the extent of contamination. The extraction holding time applies to those samples which the consultant believes will define the deepest limits of contamination in soil, and therefore demonstrate that the site does not impact ground water. If this 72 hour limit is exceeded, then ADEQ may not consider results below laboratory reporting limits (results that are none detected) to be valid.

   ELAC Technical subcommittee is addressing this issue and considering methanolic field preservation as an alternative to 72 hour extractions. We will keep you informed of the subcommittee's progress through the UPDATES.

2. Clarification regarding acidification of water samples for metal analysis (Information Update, March 9, 1995):

   The acidification of water samples done after the samples arrive at the laboratory is applicable to drinking water only and <u>does not</u> apply to waste water and RCRA water.

3. Some of the highlights in the "Technical Notes" regarding metal analysis in drinking water:

   A. The samples for metal analysis (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium,

Mercury, Nickel, Selenium, Thallium), must not be filtered prior to either sample digestion or "direct analysis." Samples are acid preserved with nitric acid to pH less than two, held for 16 hours, and the pH verified to be less than two before sample processing is started. In addition, the turbidity of the acidified sample must be measured with an approved method after preservation is complete. If turbidity is greater than 1 nephelometric unit (NTU), sample digestion is required using the digestion procedure described in the approved method. If the acid preserved sample contains turbidity less than one NTU, the sample may be analyzed by "direct analysis" without digestion. However, irrespective of the turbidity of the sample, when determining mercury by cold vapor atomic absorption, antimony, arsenic, or selenium by gaseous hydride atomic absorption, sample aliquots must be digested prior to analysis. For the determination of arsenic and selenium by SM 3114B, perchloric acid digestion procedure is not required by EPA and should be avoided, because of potential danger when using perchloric acid, and because a special fume hood is required.

B. For the determination of chromium by graphite analysis, one mL of 30% hydrogen peroxide should be added to 100 mL of calibration standards and the samples, prior to the analysis. If calcium is present in the chromium sample at concentrations ranging from 10 to 50 mg/L, use of matrix modifier, magnesium nitrate is highly recommended.

C. For graphite furnace determinations of selenium when nickel nitrate (Ni conc. at 0.1%) is used as the matrix modifier, two mL of 30% hydrogen peroxide per 100 mL of sample or standard should be added prior to analysis. If the digestion of the sample is required, hydrogen peroxide is added to the samples at the time of digestion. Nickel nitrate is added to the aliquot of the processed sample and the calibration standards at the time of analysis or may be added directly in the furnace (20 ug per 20 uL injection).

D. For cyanide analysis by 335.2, EPA recommends to use distillation procedure from Standard Method (SM 4500-CN-C) instead of EPA 335.2 because the distillation procedure in EPA 335.2 has problems associated with it. The sodium hydroxide absorber solution final concentration must be adjusted to 0.25N before colorimetric analysis.

4. The training Forum at Biosphere 2, sponsored by the Arizona State Laboratory Services and the Arizona Laboratory Association, was a big success. There were 74 attendees and several positive comments were received from them. This is being proposed as an annual event and we look forward to seeing you next year.

5. If you have any questions regarding any "Information Updates" please contact Prabha Acharya at the above numbers. We are experiencing some problems with our 800 number, and are in the process of getting it fixed. We apologize for the inconvenience.

THIS MESSAGE AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST, BY CONTACTING:
WESLEY PRESS AT (602) 542-0357